



CVF

CLIMATE
VULNERABLE
FORUM

CPP PROJECT #2

AKOSOMBO SUSTAINABLE TEXTILES PARK PROJECT

PROJECT SNAPSHOT

PROJECT OVERVIEW

Recent industry reports by the Boston Consulting Group and others (BCG, 2022; McKinsey, 2023), have identified the green manufacturing opportunity for Africa. Green manufacturing – focused on labor-intensive activities which use renewable energy – can generate good decent jobs for Africa, while ensuring environmental sustainability.

Global demand is also increasing for goods produced using sustainable, low-carbon production processes. Consider the case of the textile and apparel sector. Several leading fashion brands (e.g. PVH/Calvin Klein, Patagonia, Ralph Lauren, etc.) have made sustainability commitments to both their shareholders and consumers. This provides an opportunity for African countries to harness their renewable energy and labour to capture part of this market opportunity.

This project by the Akosombo Industrial Company Limited (AICL) in Ghana, aims at capturing this opportunity. The Akosombo Industrial Company Limited (AICL) is a public-private manufacturing enterprise supported by the Government of Ghana. The AICL factory produces brightly colored “wax prints” fabric, which are common across West Africa. The factory currently produces about 5 million meters of printed cotton fabric annually. The goal of this project is to expand the current product range with a focus on circular production models using recycled used clothing. The final product will be recycled, sustainably produced garments which are now sought by major international clothing brands.

The Akosombo site is focused on green manufacturing. The factory relies solely on renewable energy sources, from the nearby Akosombo hydro-electric power dam in Ghana. In addition, the factory’s production has been partly decarbonized with the installation of a 10 MT per hour biomass steam boiler. The biomass boiler utilizes local agricultural waste (e.g. palm kernel shells, coconut husks) as feedstock, and has eliminated our dependence on fossil fuels (e.g. diesel, residual fuel oil).

In terms of job creation, the factory employs about 750 workers directly, about 2000 workers indirectly, and supports the livelihoods of several thousand cotton farmers. Following the Akosombo Sustainable Textiles Project, we will create approximately 10,000 direct and 30,000 indirect jobs.

BANKABILITY & FINANCIAL VIABILITY

- **Total project cost:** About USD 105 million
- **Funding required:** USD 90 million (mix of equity, concessional debt, and grants)
- **Financial model/structure:** Public private partnership
- **Expected IRR (Internal Rate of Return):** About 8 percent
- **Payback period:** 15 years
- **Other financial metrics:** TBD
- **Key investors/partners (if any):** Government of Ghana, local Ghanaian SMEs, the Development Bank Ghana (DBG), philanthropic foundations.
- **Risk mitigation strategies:**

Market Risks

- Securing long-term contracts or partnerships with international fashion brands committed to sustainable production. This can be done by engaging with brands like Calvin Klein, Patagonia, and Ralph Lauren, which already have sustainability goals, will reduce exposure to market fluctuations and demand volatility.
- Diversification of product lines to cater to both local and international markets to reduce dependency on a single market.

Financial Risks

- Establishing a robust financial model that includes a blend of concessional debt, equity, and grants. This mix will cushion the project from the pressures of high-interest debts while attracting impact investors focused on sustainability.
- Form partnerships with development finance institutions (e.g., Development Bank Ghana) and impact investors to spread financial risk.

Operational Risks

- Implementation of preventive maintenance systems for all machinery and equipment, including the biomass boiler, to minimize breakdowns and disruptions.
- Increase investments in ongoing training programmes for the workforce to improve technical proficiency and operational efficiency, ensuring the factory runs at optimum capacity.

Supply Chain Risks

- Establishment of multiple sources for raw materials, particularly for recycled inputs i.e. cotton, to avoid supply chain disruptions.
- Expand the use of local agricultural waste for the biomass boiler to ensure a stable, low-cost fuel source and strengthen local supply chains.

CLIMATE RESILIENCE & MITIGATION

- **Climate resilience measures:** The Akosombo Sustainable Textiles Project will be located at the Akosombo site, which aims to be Africa's first net-zero manufacturing park. The project will use local raw materials, recycled products, and renewable energy sources.
- **GHG emissions reduction:** Currently, the project records a total annual emission reduction of 17,228.78 tons CO₂ equivalent from the use of biomass steam boilers and electricity supplied directly from a hydro-electric power plant within the enclave.
- **Adaptation strategies:** Besides renewable energy sources, the Akosombo site has also decarbonized steam production at the factory site. Specifically, we installed a 10 MTPHA biomass boiler to provide industrial steam for the project. The biomass boiler utilizes local agricultural waste (such as palm kernel shells, coconut husks, etc.) as feedstock.
- **Alignment with climate policies and regulations:** The project is well aligned with Ghana's climate mitigation and adaptation goals, and supports the country's overall job creation objectives.

RESOURCE EFFICIENCY

- **Energy efficiency measures:** The Akosombo Textiles project promotes the efficient use of energy by undertaking retrofitting activities on the factory's electrical machinery and equipment. Recently, a new state of the art printing machine was installed to reduce energy consumption in production areas. The following activities have also been undertaken to reduce the factory's energy consumption: fixing of Variable Frequency Drives (VFD) to some electrical motors to reduce inrush starting currents; replacement of old central air-conditioners with new inverter-type air-conditioners; replacement of most low-efficient light bulbs with high-efficient ones such as energy saver and LED bulbs; installation of a new high-efficient air compressor machine; and installation of transparent roofs on the factory buildings to make use of daylight sun during the day time.
- **Water/resource conservation strategies:** Water for the project is sourced directly from the nearby Volta Lake. The water is treated prior to use at the factory site, and the waste effluent is also treated and recycled.
- **Use of renewable energy or circular economy principles:** Cotton is one of the raw materials for textile production. This raw material is sourced locally in the West Africa region, ensuring traceability and minimizing GHGs from long transport routes. In addition, we will apply circular economy principles. Ghana is one of the largest destinations for used clothing. We will also recycle (mechanically) some of the unsold used clothing, and blend fibers, to produce new recycled fabric and garments. Recycling conserves energy and reduces the need for raw material extraction, which helps mitigate climate change. It also minimizes waste and pollution, lowering the overall environmental impact. The park uses a Methyl Tetrahydrophthalic Anhydride (MTPHA) biomass steam boiler for its steam requirements, which is powered by organic waste from local

suppliers. By utilizing biomass, the project reduces reliance on non-renewable energy sources and recycles organic waste, promoting energy efficiency. By promoting energy efficiency, recycling fosters a “green” mindset and encourages more sustainable lifestyles.

ALIGNMENT WITH 1.5°C TEMPERATURE THRESHOLD

- **GHG reduction targets in line with the 1.5°C goal:** By 2030, the project is projected to have avoided over 103,372.68 tons of CO₂ equivalents in carbon emissions, based on current project data and forecasts.
- **Technological innovations (if any) contributing to low-carbon development:** Use of biomass boilers for steam generation, utilizing local agricultural waste as feedstock. The project would continue to derive its electricity source from the hydro-electric power plant situated within the enclave of the project site.
- **Potential for scaling impact on emissions reduction:** The project plans to implement additional energy efficiency measures in the near future to further reduce its carbon footprint. These measures include installing Variable Frequency Drives (VFDs) on other electrical motors to lower inrush starting currents, replacing outdated air-conditioners with energy-efficient inverter models, upgrading low-efficiency light bulbs to high-efficiency alternatives, and installing high-efficiency air compressor machinery. These actions aim to ensure that all electrical equipment and machinery achieve optimal energy efficiency.

SOCIAL IMPACT & SDG CONTRIBUTION

- **Job creation:** The Akosombo site currently employs about 750 direct workers and 2000 indirect workers. Following the Akosombo Sustainable Textiles Park Project, we will create approximately 10,000 direct and 30,000 indirect jobs.
- **Support for vulnerable communities:** Most workers for the factory are based in nearby surrounding communities. Some of these communities are in riverine areas (near the Volta Lake) which are vulnerable to flooding following climate shocks.
- **Social inclusion measures:** Yes, the textile and garment industry employs predominantly women (about 75 percent of staff) and the youth (about 80 percent of staff). In addition, the Akosombo factory provides healthcare and pension coverage for all workers; with an onsite canteen that provides meals for staff during their work shift.
- **SDG alignment:** The Akosombo Project is well-aligned with several SDGs, but with strong emphasis on: SDG 8 (decent work and economic growth), SDG 9 (industry, innovation and infrastructure), SDG 7 (affordable and clean energy) and SDG 12 (responsible consumption and production).

CONTRIBUTION TO GHANA'S CLIMATE PROSPERITY PLAN & NDC COMMITMENTS

- **Specific contributions to the CPP goals:** The CPP plans by the CVF emphasize the importance of shared prosperity plans which combine green industrial policies and broader economic growth in CVF countries. This project is well-aligned with the CPP objective of driving climate-positive economic growth and creating good green jobs.
- **Alignment with NDC targets (mitigation and adaptation):** Yes
- **Policy coherence with Ghana's climate agenda:** Aligned with Ghana's climate mitigation and adaptation goals; and supports the government's goals on youth job creation and broader economic development.

INVESTMENT OPPORTUNITY & EXIT STRATEGY

- **Unique selling points of the project:** Sustainably produced garments which meet ESG aspirations of major international fashion brands (e.g. Calvin Klein, Patagonia, H&M, etc.).
- **Investor benefits:** Impactful, ESG-aligned investments with sustained returns.
- **Exit strategy and timeline:** After Year 5

ADDITIONAL INFORMATION

Project Certifications: N/A

Third-party endorsements or awards: Already received technical assistance and investor visits from GIZ development agency (Germany), the International Finance Corporation (World Bank) and the Tony Blair Institute.

Case studies or examples of similar successful projects: N/A

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